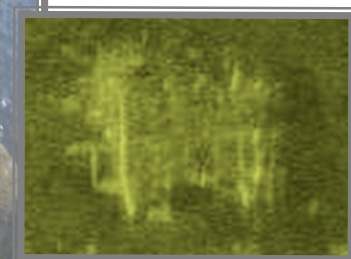
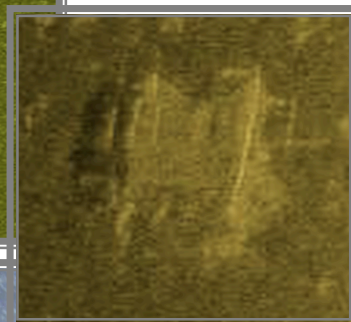
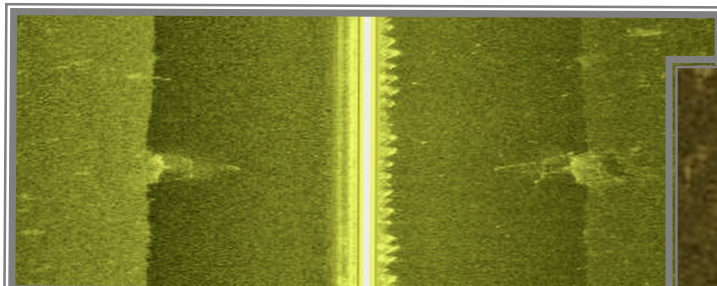


MARITIME HERITAGE MINNESOTA



Ann Merriman
Christopher Olson

Minnesota Suburban Lakes Nautical Archaeology 1 Project: Lake Waconia



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Acknowledgments

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Maritime Heritage Minnesota Staff, Volunteers, Board of Trustees, & Mascots



“ACHF grants have allowed a small St. Paul-based nonprofit, Maritime Heritage Minnesota (MHM), to re-establish the discipline of underwater archaeology in Minnesota. Without this support, MHM could not have conducted its groundbreaking nautical archeological and maritime historical research.”

~Steve Elliott, Minnesota Historical Society CEO and Director, January 2015

Introduction

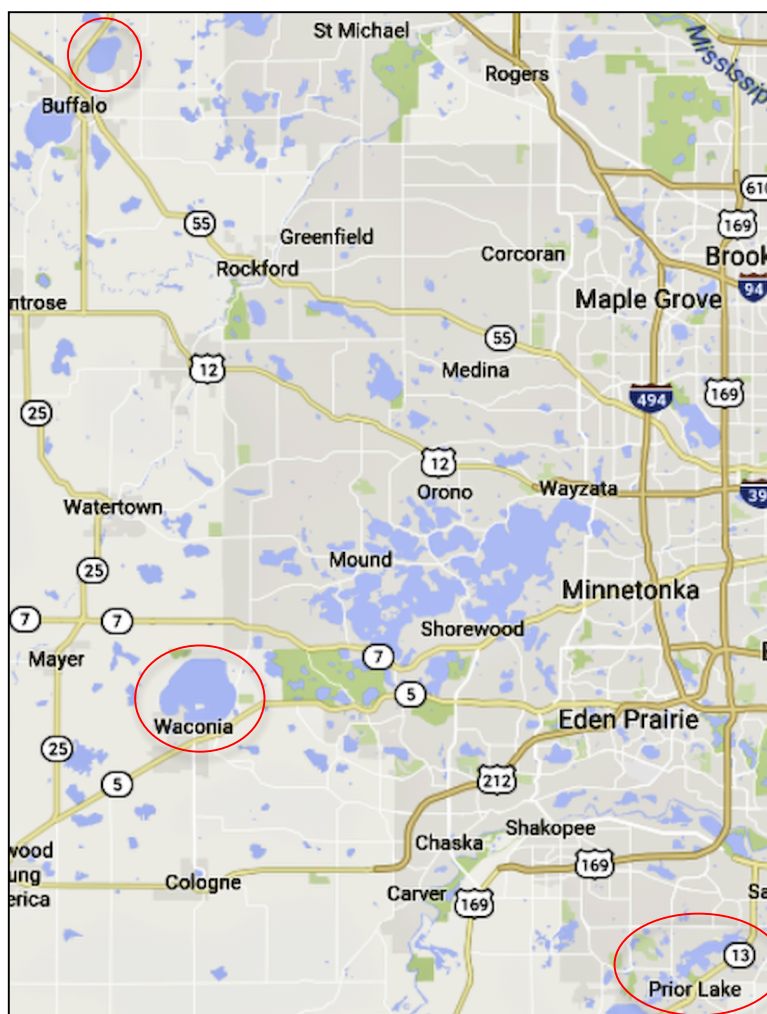
Wrecks and the artifacts associated with them tell a story. Removing or otherwise disturbing artifacts, treating them as commodities that can be sold, obliterates that story. Nautical archaeological and maritime sites are finite, and are significant submerged cultural resources. Nautical, maritime, underwater, maritime terrestrial – Maritime Heritage Minnesota's (MHM) deals with all of these types of sites throughout the State of Minnesota. MHM's Mission is to document, conserve, preserve, and when necessary, excavate these finite cultural resources where the welfare of the artifact is paramount. MHM is concerned with protecting our underwater and maritime sites – our shared Maritime History – for their own benefit in order for all Minnesotans to gain the knowledge that can be obtained through their study. MHM's study of wrecks does not include the removal of artifacts or damaging the sites in any way. MHM does not raise wrecks or 'hunt' for 'treasure'. Submerged archaeological sites in Minnesota are subject to the same State statutes as terrestrial sites: the Minnesota Field Archaeology Act (1963), Minnesota Historic Sites Act (1965), the Minnesota Historic District Act (1971), and the Minnesota Private Cemeteries Act (1976) if human remains are associated with a submerged site. Further, the case of *State v. Bollenbach* (1954) and the Federal Abandoned Shipwrecks Act of 1987 provide additional jurisdictional considerations when determining State oversight and "ownership" of resources defined by law as archaeological sites (Marken, Ollendorf, Nunnally, and Anfinson 1997, 3-4). Therefore, just like terrestrial archaeologists working for the State or with contract firms, underwater archaeologists are required to have the necessary education, appropriate credentials, and hold valid licenses from the Office of the State Archaeologist (OSA).



MHM completed a remote sensing side and down imaging sonar survey of Lake Waconia (3,080 acres) in 2012. In 2016 during the Minnesota Suburban Lakes Survey Project (MSLS), MHM surveyed Upper and Lower Prior Lake (PL, 1,238 acres), and Lake Pulaski (LP, 702 acres).¹ . Prior to MHM's comprehensive surveys, there were no recognized nautical archaeological or maritime sites on bottoms of these suburban lakes.

Preface

During the Minnesota Suburban Lakes Nautical Archaeology 1 Project (MSLNA-1), MHM investigated 5 anomalies in Lake Waconia in Carver County, 10 anomalies in Lake Pulaski in Wright County, and 14 anomalies in Prior Lake in Scott County in order to answer specific questions about their natures. The fieldwork was conducted from mid-August to early September 2017.



The locations of the 3 lakes where MHM investigated 28 Anomalies during the MSLNA-1 Project.

¹During the MSLS Project MHM also surveyed Lake Sylvia (LS, 1,524 acres), Medicine Lake (ML, 886 acres), Lake Johanna (LJ, 213 acres), and Lake Elmo (LE, 206 acres).

Results of the Minnesota Suburban Lakes Nautical Archaeology 1 Project

Research Design

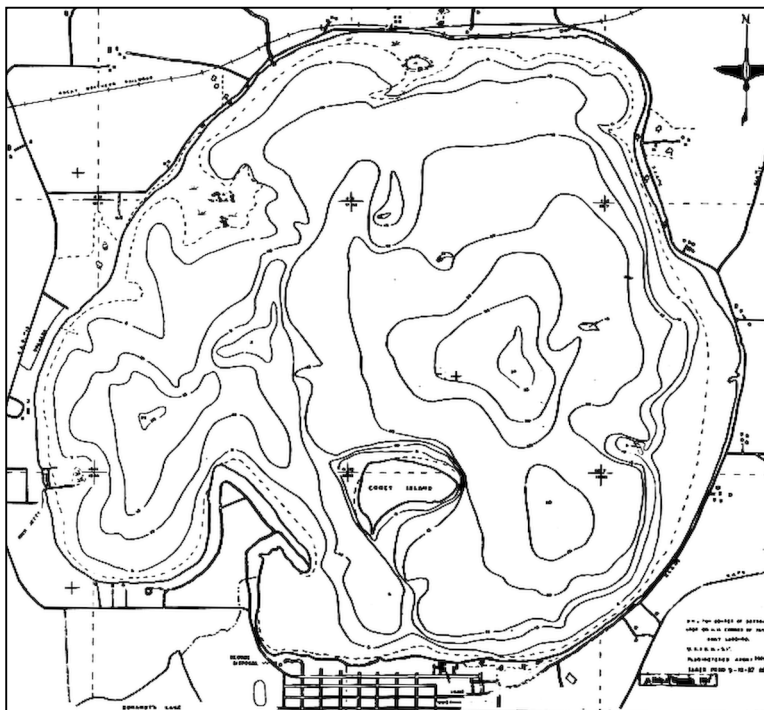
The purpose of the MSLNA-1 Project was to answer questions about and determine the nature of specific unknown anomalies in order to increase the collective maritime archaeological and historical knowledge of Minnesotans. MHM determined which anomalies would be investigated from an analysis of sonar data that suggested they were submerged cultural resources. Each anomaly was assigned a number upon its recognition as a possible site. During the MSLNA-1 Project, MHM examined 5 anomalies in Lake Waconia, 10 anomalies in Lake Pulaski, and 14 anomalies in Prior Lake. Using data accumulated from the fieldwork as a starting point, MHM conducted research to place newly recognized nautical archaeological sites and anomalies into their historical contexts. Minnesota Archaeological Site Forms were filed with the OSA when appropriate.

Methodology

The methodology used to identify and rudimentarily document underwater archaeological anomalies is straightforward. MHM used the GPS coordinates of an anomaly to drop a weighted diver down buoy near the target. The dive boat anchored a short distance away from the buoy and divers geared up for the dive. At any given time, there were between two and four divers underwater. If the buoy anchor weight landed near and sometimes on the anomaly or wreck, no search for the target was conducted. However, for a variety of reasons, a brief search for the target was conducted until it was located or it was determined that the anomaly was a false sonar return. If a cultural or natural resource was located, the divers photographed and recorded video of the site or object, logged its basic measurements, examined any obvious attributes, and measured sediment build-up (if appropriate). After the completion of the MSLNA-1 Project fieldwork in early September 2017, there is now 1 identified wreck on the bottom of Lake Waconia, 7 wrecks and 1 object in Lake Pulaski, and 3 wrecks, 3 maritime sites or objects, and 2 'other' site types on the bottom of Prior Lake. The anomalies were identified through underwater archaeological reconnaissance fieldwork using SCUBA, digital video, measured drawings, and maritime historical research. Of these 11 wrecks, 3 of them now have Minnesota archaeological site numbers.

Lake Waconia Project Results

MHM identified 51 anomalies in Lake Waconia in the side and down imaging sonar footage recorded during the LWS Project in 2012. In 2013, MHM investigated 10 anomalies (A18-A25, A27, and A29) in Lake Waconia to determine if they are submerged cultural resources; all 10 were false targets. In mid-August 2017, MHM returned to Lake Waconia and investigated 5 anomalies (A35, A47-A50), identifying 1 wreck.

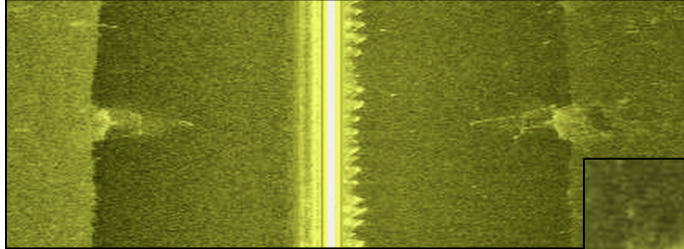


Lake Waconia (State of Minnesota Department of Conservation 1959).

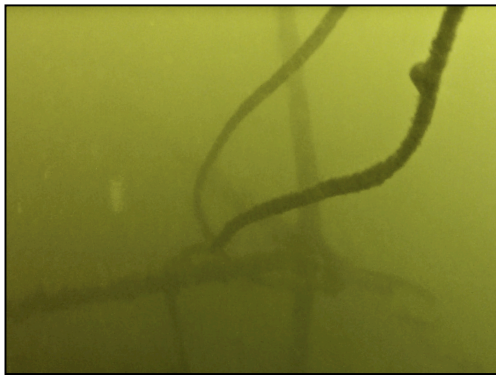
Pontoon Boat Wreck Site (Anomaly 35)

MHM recorded a sonar image of Anomaly 35 in August 2012 during the Lake Waconia Survey (LWS). Initially MHM surmised the object was a fish house because of its square sonar signature. MHM investigated the anomaly in early August 2017 and determined it to be a pontoon boat wreck. The Pontoon Boat Wreck Site is 8.50 feet in the beam and 17.00 feet long, but only 14.70 feet of the wreck is visible since the bow ends of the pontoons are buried. The pontoons are round in cross-section at the stern and painted red; their shape (rounded, pointed) at the bow is unknown. The wreck's deck platform is a wooden rectangle with separate trapezoidal appendages attached at the stern, overhanging the pontoons. The deck is a red painted wooden plywood laminate comprised of several layers. Layers of green, blue, and red paint are evident throughout the wreck. A thin metal railing held up by stanchions extends along the front and sides of the wreck and continues aft around the stern platform, with a break amidships to allow people to board. The railing is semi-detached from the wreck forward and in place aft. The displaced port side amidships railing stanchion rests on a plywood sheet; during the wreck documentation, the plywood could be felt buried in light silt. In other areas, the railing stanchions are attached to the wreck's deck with metal bracing plates. A 5-gallon bucket filled with concrete and wrapped with a chain rests on the port side deck amidships; MHM contends the bucket was a mooring anchor when the pontoon was still floating. Rope lines are attached to the wreck near the bow, floating in the water column. A tire that may have acted as a bumper is on the starboard aft side next to the wreck. Although MHM could not discern a Minnesota registration number or validation stickers on the side of the platform, it cannot be stated that the boat sank prior to July

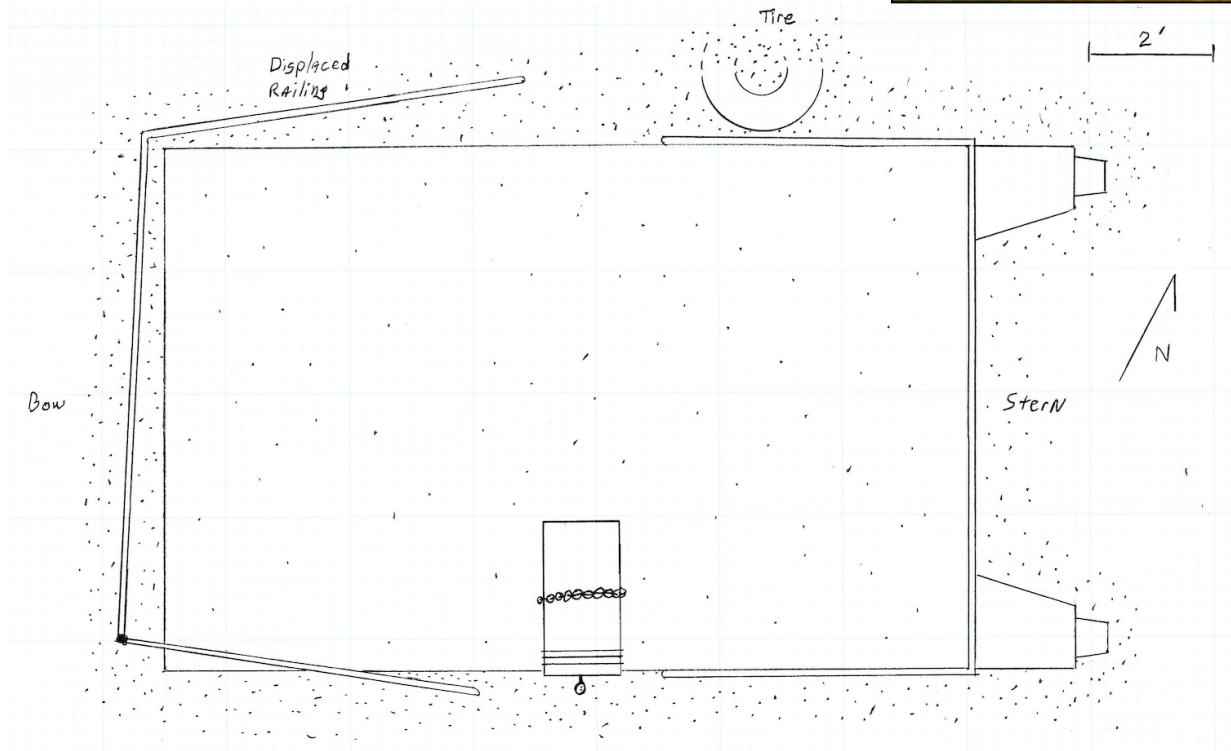
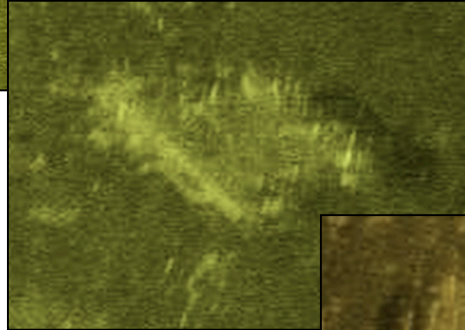
1959 – the date licensing was first required. Further historical research is required into the wreck's manufacture and working life on Lake Waconia in order to tell this boat's specific story. The Pontoon Boat Wreck will not be categorized as an archaeological site at this time, but she is a State and Federally protected maritime historical resource.



MHM's 2017 sonar images of Anomaly 35, the Pontoon Boat Wreck. A down image is to the left and side images are below.



Left: The rope lines attached to the metal railings of Anomaly 35, floating in the water column.



A sketch of the Pontoon Boat Wreck (Anomaly 35, Christopher Olson).



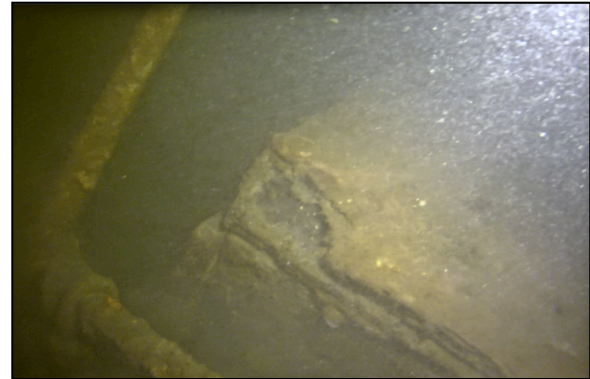
The port side quarter showing the overhanging deck appendage over the stern end of the pontoon.



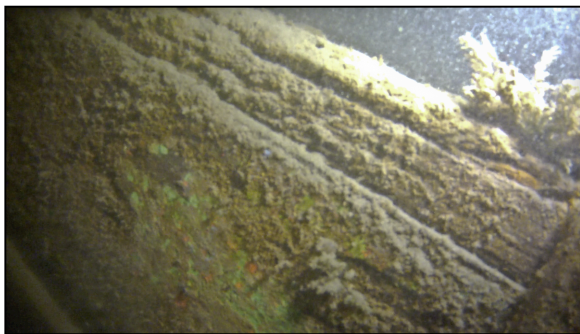
The starboard side stern pontoon and the trapezoidal appendage off of the rectangular deck.



Starboard side metal plates that attach the metal railing to the Pontoon Boat Wreck's platform.



The starboard side bow showing the dislodged metal railing.



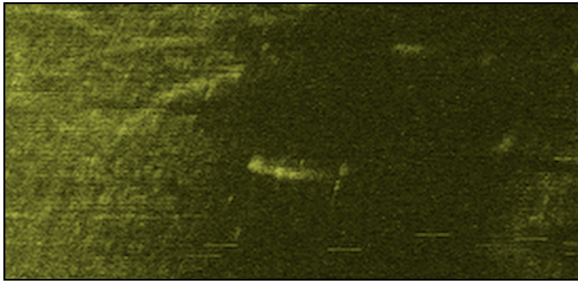
Green, red, and blue paint on the port side of the platform, just forward of amidships.



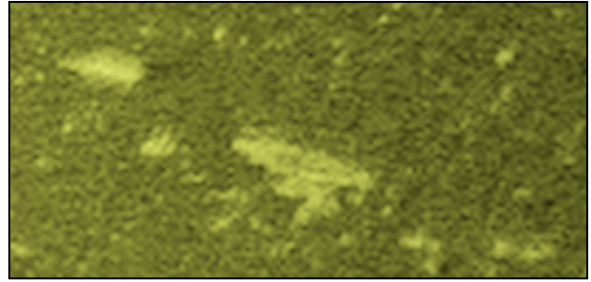
Anomalies 47, 48, 49, 50

Sonar images of Anomalies 47, 48, 49, and 50 LWS Project in August 2012. These 5 anomalies were identified during the MSLNA-1 Project as false targets. False targets are most often rocks, bottom contours that produce shadowed acoustical signatures,

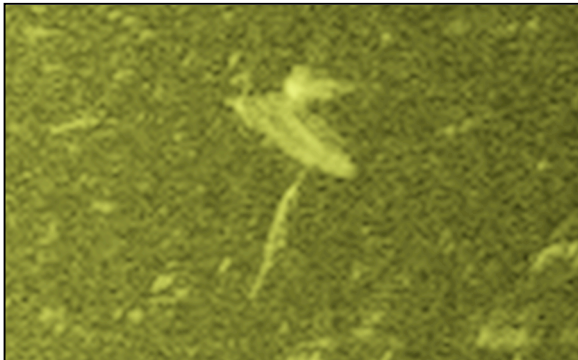
and weed clumps. In the case of A47, MHM surmised it might be a small wreck next to a slight rise in the lake bottom. Anomaly 48's acoustical signature strongly suggests a small wreck – it is similar to several anomalies MHM had identified as wrecks in Lake Minnetonka, Prior Lake, and Lake Pulaski. Anomaly 49 strongly resembles a capsized wreck or small sailboat, but no cultural resource was located during the dive. Lastly, Anomaly 50 stood out in the sonar footage and MHM believed it could be a submerged cultural resource, possibly a wreck. MHM contends these 4 sonar signatures do suggest human-made objects or sites, but one issue is evident with all of them: they do not cast acoustical shadows. MHM has identified many wrecks and other objects on the bottom of lakes that do not cast shadows because they are partially buried. There is a possibility that these 4 anomalies, and in particular A48, are just under the bottom of the lake and the sonar picked them up; when MHM searched for them visually while diving, they couldn't be seen.



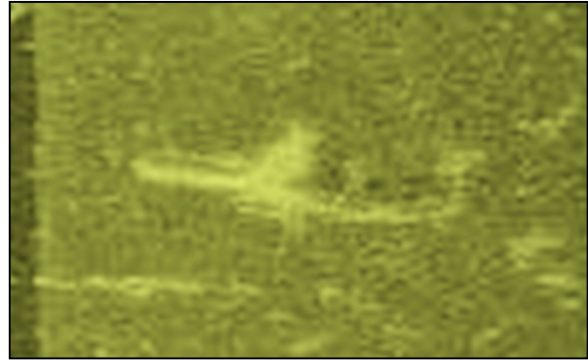
Anomaly 47



Anomaly 48



Anomaly 49



Anomaly 50

Conclusion

MHM identified the first wreck on the bottom of Lake Waconia during the MSLNA-1 Project. Anomaly 35, the Pontoon Boat Wreck, represents waterborne recreation and lake travel. Although MHM cannot identify the wreck's maker and model, additional historical research in the future may allow this identification. Further, MHM advocates revisiting Lake Waconia with updated sonar equipment that will increase the resolution of the recorded sonar footage created during remote sensing surveys. Targeted survey that experiments with different sonar beam widths depending on water depth is a useful tool to obtain more detailed images of already-recorded acoustical signatures that might be ambiguous and difficult to interpret. To date, MHM has investigated 16 anomalies in Lake Waconia using SCUBA, identifying 1 wreck with 15 false targets. With improved sonar footage there will be fewer dives on false targets and submerged cultural resources more easily identified.

The MSLNA-1 Project produced interesting and significant results investigating 29 anomalies in 3 lakes in 3 counties. MHM identified 11 wrecks, 3 maritime sites or objects, 2 'other' sites, and 1 'other' object in Lake Waconia, Lake Pulaski, and Prior Lake. Of the 11 wrecks, MHM acquired Minnesota Archaeological Site Numbers for 3 of them; 2 in Prior Lake and 1 in Lake Pulaski. Two of these wrecks are small wooden boats, similar in construction and design to 15 wrecks identified by MHM in Lake Minnetonka.² As more data is accumulated and additional nautical archaeological sites identified and analyzed, to date submerged cultural resources from 9 suburban lakes³ can be compared and contrasted. Attributes noted in certain wrecks may be indicative of a particular boat builder or at least assigned to a particular type or time period. Further, to date MHM has identified 4 pontoon boat wrecks in 3 lakes; of these sites, 3 of them are capsized (Lake Pulaski, Lake Minnetonka) and 1 is upright (Lake Waconia).

The wrecking processes responsible for the creation of Minnesota's submerged cultural resources have produced a variety of underwater sites. Identifying, comparing, and associating these new sites in Lake Waconia, Lake Pulaski, and Prior Lake with known sites increases our understanding of the historical context within which these cultural resources operated or were exploited by Minnesotans. Future studies will greatly enhance our shared maritime history through the recognition of submerged cultural resources and the stories behind their construction and disposition on the bottoms of these lakes studied to date. The diversity of nautical, maritime, and underwater sites so far identified by MHM in Minnesota's lakes are tangible examples of the rich maritime history of the area. Through research, diving on wrecks and anomalies to collect pertinent data, and ensuring that the collected information is accessible by the public, MHM will continue to investigate Minnesota's submerged cultural resources into the future. MHM continues to re-examine recorded sonar footage from completed remote sensing surveys. Targeted re-scanning has occurred in several lakes using knowledge gained from the comparison of anomalies that have proven to be wrecks or other

²See MHM's *Lake Minnetonka Nautical Archaeology Project 1-7 Reports* (2012-2017) for more information.

³To date, MHM has completed sonar surveys and nautical archaeological projects in Lake Elmo, Lake Johanna, Lake Minnetonka, Lake Pulaski, Lake Sylvia, Lake Waconia, Medicine Lake, Prior Lake, and White Bear Lake.

submerged cultural resources in past projects. With improved technology, future scanning projects will produce clearer data. The results of the MSLNA-1 Project summarized above is connected to all the work that came before⁴ and will come after its completion. At this point, watercraft located Minnesota's suburban lakes represent nearly 1,000 years of Minnesota's maritime history and nautical archaeology. In the historic period, the known wrecks represented in these lakes span over 140 years of local maritime culture. It is clear – even through this Phase 1 pre-disturbance nautical archaeological investigation – that the types of sites that exist in Minnesota's suburban lakes documented to date are diverse, archaeologically and historically significant, and worthy of great attention.

⁴See MHM's *Minnesota Suburban Lakes Survey Project Report* for more information.

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